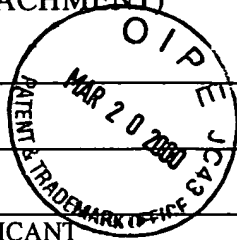


## Section 2. Form PTO - 1449 (Modified) (ATTACHMENT)

File Copy



FORM PTO-1449 U.S. DEPT. OF COMMERCE (Modified) PATENT AND TRADEMARK OFFICE	ATTY DOCKET NO. BTI-44	SERIAL NO. 09/518,763
	APPLICANT Blissard et al	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT	FILING DATE March 3, 2000	GROUP 1636

## U.S. PATENT DOCUMENTS

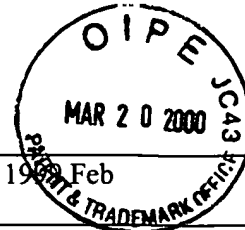
Exam Initial	DOCUMENT NUMBER	DATE	PATENTEE	CLASS	SUB	FILING DATE IF APPROPR

## FOREIGN PATENT OR PUBLISHED FOREIGN PATENT APPLICATION

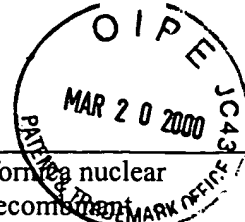
Exam Initial	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB	TRANSLATION YES   NO

## OTHER PRIOR ART

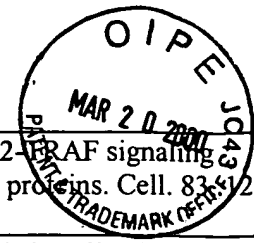
Exam Initial	Author, Title, Date, Pertinent Pages, Etc
AA	Granados, R.R. and Hashimoto, Yoshifumi, Chapter 1: INFECTIVITY OF BACULOVIRUSES TO CULTURED CELLS, pp. 3- 13. in Invertebrate Cell System Applications, Volume II, Jun Mitsuhashi, Editor, CRC Press, Florida, 1989.
AB	Ayres, M.D., Howard, S.C., Kuzio, J., Lopez-Ferber, M. and Possee, R.D. The complete DNA sequence of Autographa californica nuclear polyhedrosis virus. <i>Virology</i> 202 (2), 586-605 (1994)
AC	Beidler, D. R., Tewari, M., Friesen, P. D., Poirier, G. & Dixit, V. M. The Baculovirus p35 protein inhibits Fas- and tumor necrosis factor-induced apoptosis. <i>J Biol Chem</i> 270, 16526-16528 (1995).
AD	Bertin, J. et al. Apoptotic suppression by baculovirus P35 involves cleavage by and inhibition of a virus-induced CED-3-ICE-like protease. <i>Journal of Virology</i> . 70, 6251-6259 (1996).
AE	Blissard, G. W. & Rohrmann, G. F. Baculovirus gp64 gene expression: Analysis of sequences modulating early transcription and transactivation by IE1. <i>J. Virol.</i> 65, 5820-5827 (1991).
AF	Bump, N. J. et al. Inhibition of ICE family proteases by baculovirus antiapoptotic protein p35. <i>Science</i> 269, 1885-1888 (1995).
AG	Cartier, J. L., Hersherger, P. A. & Friesen, P. D. Suppression of apoptosis in insect cells stably transfected with baculovirus p35: Dominant interference by N terminal sequences p351-76. <i>J. Virology</i> 68, 7728-7737 (1994).
AH	Chang, M.-J., Kuzio, J. & Blissard, G. W. Modulation of translational efficiency by contextual nucleotides flanking a baculovirus initiator AUG codon. <i>Virology</i> 259, 369-383 (1999).
AI	Clem, R. J., Fechheimer, M. & Miller, L. K. Prevention of apoptosis by a baculovirus gene during infection of insect cells. <i>Science</i> 254, 1388-1390 (1991).



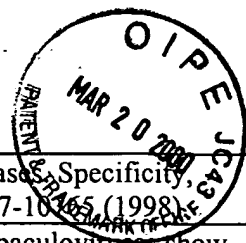
PC	AJ	Cryns, V. & Yuan, J. Proteases to die for [published erratum appears in Genes Dev 1999 Feb 1;13(3):371]. <i>Genes Dev</i> 12,1551-1570 (1998).
PC	AK	Davis, T. R. <i>et al.</i> Comparative recombinant protein production in eight insect cell lines. <i>In Vitro Cell Dev Biol</i> 29A, 388-390 (1993).
PC	AL	Davis, T. R., Trotter, K. M., Granados, R. R. & Wood, H. A. Baculovirus expression of alkaline phosphatase as a reporter gene for evaluation of production, glycosylation and secretion. <i>Biotechnology (N Y)</i> 10, 1148-1150 (1992).
PC	AM	Fisher, A. J., Cruz, W., Zoog, S. J., Schneider, C. L. & Friesen, P. D. Crystal structure of baculovirus P35: role of a novel reactive site loop in apoptotic caspase inhibition. <i>EmboJ</i> 18, 2031-2039 (1999).
PC	AN	Gage, L. P. The Bombyx mori genome: analysis by DNA reassociation kinetics. <i>Chromosoma</i> 45, 27-42 (1974).
PC	AO	Hay, B. A., Wolff, T. & Rubin, G. M. Expression of baculovirus P35 prevents cell death in Drosophila. <i>Development</i> 120, 2121-2129 (1994).
PC	AP	Hershberger, P. A., Lacount, D. J. & Friesen, P. D. The apoptotic suppressor P35 is required early during baculovirus replication and is targeted to the cytosol of infected cells. <i>Journal of Virology</i> 68, 3467-3477 (1994).
PC	AQ	Martin, S. J. & Green, D. R. Protease activation during apoptosis: death by a thousand cuts? <i>Cell</i> 82, 349-352 (1995).
PC	AR	Martinou, I. <i>et al.</i> Viral Proteins E1B19K and p35 Protect Sympathetic Neurons from Cell Death Induced by NGF Deprivation. <i>Journal of Cell Biology</i> 128, 201-208 (1995).
PC	AS	Milner, A.E., Johnson, G.D., and Gregory, C.D. Prevention of Programmed Cell Death in Burkitt Lymphoma Cell Lines by bcl-2 Dependent and Independent Mechanisms. <i>International Journal of Cancer</i> 52: 636-644 (1992).
PC	AT	Monsma, S. A. & Blissard, G. W. Identification of a membrane fusion domain and an oligomerization domain in the baculovirus GP64 Envelope Fusion Protein. <i>J. Virol.</i> 69, 2583-2595 (1995).
PC	AU	Monsma, S. A., Oomens, A. G. P. & Blissard, G. W. The GP64 Envelope Fusion Protein is an essential baculovirus protein required for cell to cell transmission of infection. <i>J. Virol.</i> 70, 4607-4616 (1996).
PC	AV	Rabizadeh, S., Lacount, D. J., Friesen, P. D. & Bredesen, D. E. Expression of the baculovirus p35 gene inhibits -mammalian neural cell death. <i>Journal of Neurochemistry</i> 61, 2318-2321 (1993).
PC	AW	Rasch, E. M. The DNA content of sperm and hemocyte nuclei of the silkworm, Bombyx mori L. <i>Chromosoma</i> 45,1-26 (1974).
PC	AX	Robertson, N. M. <i>et al.</i> Baculovirus P35 inhibits the glucocorticoid -mediated pathway to cell death. <i>Cancer Research</i> 57, 43-47 (1997).
PC	AY	Sugimoto, A., Friesen, P. D. & Rothman, J. H. Baculovirus p35 prevents developmentally programmed cell death and rescues a ced-9 mutant in the nematode Caenorhabditis elegans. <i>EMBO J.</i> 13, 2023-2028 (1994).
PC	AZ	Wang, P., Granados, R. R. & Shuler, M. L. Studies on serum-free culture of insect cells for virus propagation and recombinant protein production. <i>J Invertebr Pathol</i> 59,46-53 (1992).
PC	BA	Wickham, T. J. in <i>Department of Chemical Engineering</i> 208 (Cornell University, Ithaca, NY, 1991).
PC	BB	Wickham, T. J., Davis, T., Granados, R. R., Shuler, M. L. & Wood, H. A. Screening of insect cell lines for the production of recombinant proteins and infectious virus in the baculovirus expression system. <i>Biotechnol Prog</i> 8, 391-396 (1992).
PC	BC	Xue, D. & Horvitz, H. R. Inhibition of the Caenorhabditis elegans cell-death protease CED-3 by a CED-3 cleavage site in baculovirus p35 protein. <i>Nature (London)</i> 377, 248-251 (1995).
PC	BD	Yu, Z., Podgwaite, J. D. & Wood, H. A. Genetic engineering of a Lymantria dispar nuclear polyhedrosis virus for expression of foreign genes. <i>J Gen Virol</i> 73, 1509-1514 (1992).
PC	BE	Clem, R. J. & Miller, L. K. Apoptosis reduces both the in-vitro replication and the in-vivo infectivity of a baculovirus. <i>J Virol</i> 67, 3730-3738 (1993).
PC	BF	Lee, J. C., Chen, H. H., Wei, H. L. & Chao, Y. C. Superinfection-Induced Apoptosis and Its Correlation with the Reduction of Viral Progeny in Cells Persistently Infected with Hz-1 Baculovirus. <i>J Virol</i> 67, 6989-6994 (1993).



BL	BG	Lerch, R. A. & Friesen, P. D. The 35-kilodalton protein gene p35 of autographa-californica nuclear polyhedrosis virus and the neomycin resistance gene provide dominant selection of recombinant baculoviruses. Nucleic Acids Res 21, 1753-1760 (1993).
BL	BH	Birnbaum, M. J., Clem, R. J. & Miller, L. K. An apoptosis-inhibiting gene from a nuclear polyhedrosis virus encoding a polypeptide with Cys-His sequence motifs. Journal of Virology 68, 2521-2528 (1994).
BL	BI	Gong, M. & Guarino, L. A. Expression of the 39k Promoter of Autographa californica Nuclear Polyhedrosis Virus Is Increased by the Apoptotic Suppressor P35. Virology 204, 38-44 (1994).
BL	BJ	Ribeiro, B. M., Hutchinson, K. & Miller, L. K. A mutant baculovirus with a temperature-sensitive IE-1 transregulatory protein. J. Virol. 68, 1075-1084 (1994).
BL	BK	Clem, R. J. & Miller, L. K. Control of Programmed Cell Death by the Baculovirus Genes p35 and iap. Molecular and Cellular Biology 14, 5212-5222 (1994).
BL	BL	Clem, R. J. & Miller, L. K. in Communications in Cell & Molecular Biology, Vol. 8. Apoptosis II: The molecular basis of apoptosis in disease. 89-110 (Cold Spring Harbor Laboratory Press, Plainview, New York, USA, 1994).
BL	BM	Crook, N. E., Clem, R. J. & Miller, L. K. An apoptosis-inhibiting baculovirus gene with a zinc finger-like motif. J Virol 67, 2168-2174 (1993).
BL	BN	Roy, N. et al. The gene for Neuronal Apoptosis Inhibitory Protein Is partially deleted in individuals with spinal muscular atrophy. Cell 80, 167-178 (1995).
BL	BO	Clem, R. J., Robson, M. & Miller, L. K. Influence of infection route on the infectivity of baculovirus mutants lacking the apoptosis-inhibiting gene p35 and the adjacent gene p94. Journal of Virology. 68, 6759-6762 (1994).
BL	BP	Lu, A. & Miller, L. K. The roles of eighteen baculovirus late expression factor genes in transcription and DNA replication. J. Virol. 69, 975-982 (1995).
BL	BQ	Todd, J. W., Passarelli, A. L. & Miller, L. K. Eighteen baculovirus genes, including lef-11, p35, 39K, and p47, support late gene expression. J. Virol. 69, 968-974 (1995).
BL	BR	Reed, J. C. Bcl-2 and the regulation of programmed cell death. Journal of Cell Biology. 124, 1-6 (1994).
BL	BW	Chejanovsky, N. & Gershburg, E. The wild-type Autographa californica nuclear polyhedrosis virus induces apoptosis of Spodoptera littoralis cells. Virology 209, 519-525 (1995).
BL	BT	Ahrens, C. H. & Rohrmann, G. F. Replication of Orgyia pseudotsugata baculovirus DNA: lef-2 and ie-1 are essential and ie-2, p34, and Op-iap are stimulatory genes. Virology. 212, 650-662 (1995).
BL	BU	Singh, R. P., Al Rubeai, M., Gregory, C. D. & Emery, A. N. Cell death in bioreactors: A role for apoptosis. Biotechnology and Bioengineering. 44, 720-726 (1994).
BL	BV	Singh, R. P., Emery, A. N. & Al-Rubeai, M. Enhancement of survivability of mammalian cells by overexpression of the apoptosis-suppressor gene bcl-2. Biotechnology and Bioengineering 52, 166-175 (1996).
BL	BW	Todd, J. W., Passarelli, A. L., Lu, A. & Miller, L. K. Factors regulating baculovirus late and very late gene expression in transient-expression assays. Journal of Virology. 70, 2307-2317 (1996).
BL	BX	Prikhod'ko, E. A. & Miller, L. K. Induction of apoptosis by baculovirus transactivator IE1. Journal of Virology. 70, 7116-7124 (1996).
BL	BY	Palli, S. R. et al. CfMNPV blocks AcMNPV-induced apoptosis in a continuous midgut cell line. Virology. 222, 201-213 (1996).
BL	BZ	Duckett, C. S. et al. A conserved family of cellular genes related to the baculovirus iap gene and encoding apoptosis inhibitors. Embo Journal. 15, 2685-2694 (1996).
BL	CA	White, K., Tahaoglu, E. & Steller, H. Cell killing by the Drosophila gene reaper. Science (Washington D C). 271, 805-807 (1996).
BL	CB	Liston, P. et al. Suppression of apoptosis in mammalian cells by NAIP and a related family of IAP genes. Nature (London). 379, 349-353 (1996).
BL	CC	Hay, B. A., Wassarman, D. A. & Rubin, G. M. Drosophila homologs of baculovirus inhibitor of apoptosis proteins function to block cell death. Cell. 83, 1253-1262 (1995).



12	CD	Rothe, M., Pan, M. G., Henzel, W. J., Ayres, T. M. & Goeddel, D. V. The TNFR2-TRAF signaling complex contains two novel proteins related to baculoviral inhibitor of apoptosis proteins. <i>Cell</i> . 83, 1243-1252 (1995).
12	CE	Mastrangelo, A. J. & Betenbaugh, M. J. Implications and applications of apoptosis in cell culture. <i>Current Opinion in Biotechnology</i> . 6, 198-202 (1995).
12	CF	Harvey, A. J., Bidwai, A. P. & Miller, L. K. Doom, a Product of the <i>Drosophila</i> mod(mdg4) Gene, Induces Apoptosis and Binds to Baculovirus Inhibitor-of-Apoptosis Proteins. <i>Molecular and cellular biology</i> 17, 2835 (1997).
12	CG	Seshagiri, S. & Miller, L. K. <i>Caenorhabditis elegans</i> CED-4 stimulates CED-3 processing and CED-3-induced apoptosis. <i>Current Biology</i> . 7, 455-460 (1997).
12	CH	Vucic, D., Seshagiri, S. & Miller, L. K. Characterization of reaper- and FADD-induced apoptosis in a lepidopteran cell line. <i>Molecular and Cellular Biology</i> . 17, 667-676 (1997).
12	CI	Hawkins, C. J., Uren, A. G., Hacker, G., Medcalf, R. L. & Vaux, D. L. Inhibition of interleukin 1 beta-converting enzyme-mediated apoptosis of mammalian cells by baculovirus IAP. <i>Proc Natl Acad Sci U S A</i> 93, 13786-13790 (1996).
12	CJ	McLachlin, J. R. & Miller, L. K. Stable transformation of insect cells to coexpress a rapidly selectable marker gene and an inhibitor of apoptosis. <i>In Vitro Cell Dev Biol Anim</i> 33, 575-579 (1997).
12	CK	Vucic, D., Kaiser, W. J., Harvey, A. J. & Miller, L. K. Inhibition of reaper-induced apoptosis by interaction with inhibitor of apoptosis proteins (IAPs). <i>Proc Natl Acad Sci U S A</i> 94, 10183-10188 (1997).
12	CL	Miller, L. K. Baculovirus interaction with host apoptotic pathways. <i>J Cell Physiol</i> 173, 178-182 (1997).
12	CM	Seshagiri, S. & Miller, L. K. Baculovirus inhibitors of apoptosis (IAPs) block activation of Sf- caspase-1. <i>Proc Natl Acad Sci U S A</i> 94, 13606-13611 (1997).
12	CN	Vucic, D., Kaiser, W. J. & Miller, L. K. Inhibitor of apoptosis proteins physically interact with and block apoptosis induced by <i>Drosophila</i> proteins HID and GRIM. <i>Mol Cell Biol</i> 18, 3300-3309 (1998).
12	CO	Seshagiri, S., Chang, W. T. & Miller, L. K. Mutational analysis of <i>Caenorhabditis elegans</i> CED-4. <i>FEBS Lett</i> 428, 71-74 (1998).
12	CP	Resnicoff, M. et al. The baculovirus anti-apoptotic p35 protein promotes transformation of mouse embryo fibroblasts. <i>J Biol Chem</i> 273, 10376-10380 (1998).
12	CQ	Manji, G. A., Hozak, R. R., LaCount, D. J. & Friesen, P. D. Baculovirus inhibitor of apoptosis functions at or upstream of the apoptotic suppressor P35 to prevent programmed cell death. <i>J Virol</i> 71, 4509-4516 (1997).
12	CR	LaCount, D. J. & Friesen, P. D. Role of early and late replication events in induction of apoptosis by baculoviruses. <i>J Virol</i> 71, 1530-1537 (1997).
12	CS	Clem, R. J. et al. Modulation of cell death by Bcl-XL through caspase interaction. <i>Proc Natl Acad Sci U S A</i> 95, 554-559 (1998).
12	CT	Bergmann, A., Agapite, J. & Steller, H. Mechanisms and control of programmed cell death in invertebrates. <i>Oncogene</i> 17, 3215-3223 (1998).
12	CU	Kaiser, W. J., Vucic, D. & Miller, L. K. The <i>Drosophila</i> inhibitor of apoptosis D-IAP1 suppresses cell death induced by the caspase drICE. <i>FEBS Lett</i> 440, 243-248 (1998).
12	CV	Vucic, D., Kaiser, W. J. & Miller, L. K. A mutational analysis of the baculovirus inhibitor of apoptosis Op-IAP. <i>J Biol Chem</i> 273, 33915-33921 (1998).
12	CW	Sah, N. K. et al. The baculovirus antiapoptotic p35 gene also functions via an oxidant- dependent pathway [In Process Citation]. <i>Proc Natl Acad Sci U S A</i> 96, 4838-4843 (1999).
12	CX	Izquierdo, M. et al. Blocked negative selection of developing T cells in mice expressing the baculovirus p35 caspase inhibitor. <i>Embo J</i> 18, 156-166 (1999).
12	CY	Bose, R. et al. Ceramide generation by the Reaper protein is not blocked by the caspase inhibitor, p35. <i>J Biol Chem</i> 273, 28852-28859 (1998).
12	CZ	Lee, J. C., Chen, H. H. & Chao, Y. C. Persistent baculovirus infection results from deletion of the apoptotic suppressor gene p35. <i>J Virol</i> 72, 9157-9165 (1998).



h	DA	Zhou, Q. et al. Interaction of the baculovirus anti-apoptotic protein p35 with caspases. Specificity, kinetics, and characterization of the caspase/p35 complex. Biochemistry 37, 10757-10765 (1998).
h	DB	Morishima, N., Okano, K., Shibata, T. & Maeda, S. Homologous p35 proteins of baculoviruses show distinctive anti- apoptotic activities which correlate with the apoptosis-inducing activity of each virus. FEBS Lett 427, 144-148 (1998).
h	DC	Seshagiri, S. & Miller, L. K. Baculovirus inhibitors of apoptosis (IAPs) block activation of Sf- caspase-1. Proc Natl Acad Sci U S A 94, 13606-13611 (1997).
h	DD	Griffiths, C. M. et al. In vitro host range of Autographa californica nucleopolyhedrovirus recombinants lacking functional p35, iap1 or iap2. J Gen Virol 80, 1055-1066 (1999).
h	DE	Ekert, P. G., Silke, J. & Vaux, D. L. Inhibition of apoptosis and clonogenic survival of cells expressing crmA variants: optimal caspase substrates are not necessarily optimal inhibitors. Embo J 18, 330-338 (1999).
h	DF	Du, Q., Lehavi, D., Faktor, O., Qi, Y. & Chejanovsky, N. Isolation of an apoptosis suppressor gene of the Spodoptera littoralis nucleopolyhedrovirus. J Virol 73, 1278-1285 (1999).
h	DG	Dai, X., Shi, X., Pang, Y. & Su, D. Prevention of baculovirus-induced apoptosis of BTI-Tn-5B1-4 (Hi5) cells by the p35 gene of Trichoplusia ni multicapsid nucleopolyhedrovirus. J Gen Virol 80, 1841-1845 (1999).
h	DH	Miller, L. K. An exegesis of IAPs: salvation and surprises from BIR motifs. Trends Cell Biol 9, 323-328 (1999).
h	DI	Rhee, W. J., Kim, E. J. & Park, T. H. Kinetic Effect of Silkworm Hemolymph on the Delayed Host Cell Death in an Insect Cell-Baculovirus System. Biotechnol Prog 15, 1028-1032 (1999).
h	DJ	Accession Number L22858, Autographa Californiica Nuclear Polyhedrosis Virus Clone C6, Complete Genome, Nucleotide QUERY.

EXAMINER	David Gump	8/22/00